

Comprehensive Modeling of the Effects of Hazardous Asteroids Mitigation Techniques

Completed Technology Project (2013 - 2016)



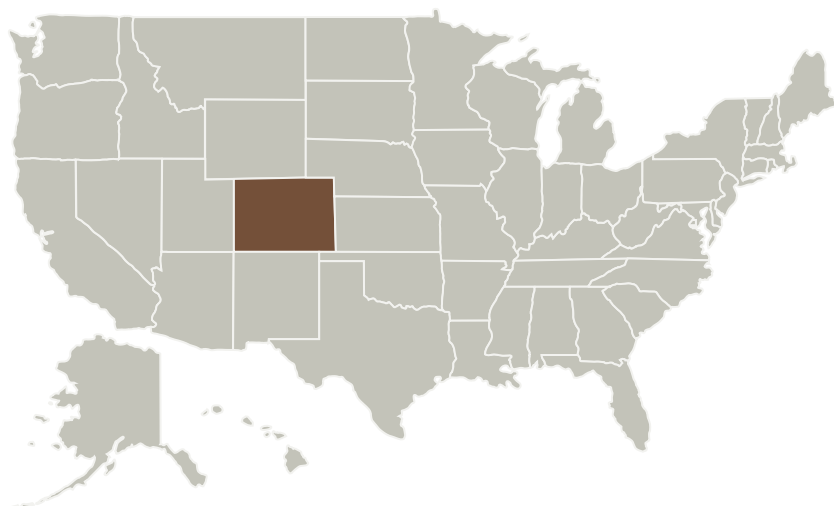
Project Introduction

A key challenge for the future of humanity is to develop and understand what technological options are viable for deflecting or mitigating hazardous asteroids. While the year-to-year probability of a major impact event is very small, it is certain that eventually humanity must confront such a possibility. In our research and technology development program we bring together a team of asteroid scientists and research engineers that have previously performed fundamental research on science and technology relevant to the modeling of hazardous asteroid mitigation. The goal of our work is to evaluate and study the likely outcomes from asteroid mitigation techniques that have been previously proposed or developed. We will use realistic models of asteroids to ensure that these techniques are evaluated accounting for the expected and predicted range of asteroid geophysical and dynamical properties of asteroids. Our research is a necessary and fundamental step in the overall design and evaluation of mitigation experiments and attempts. Our work also focuses on the necessary technology for the detection of mitigation outcomes and will use these as a fundamental metric for these techniques.

Anticipated Benefits

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Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Responsible Program:

Space Technology Research Grants

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Organizations Performing Work	Role	Type	Location
University of Colorado Boulder	Supporting Organization	Academia	Boulder, Colorado

Primary U.S. Work Locations

Colorado

Project Website:

<https://www.nasa.gov/directorates/spacetech/home/index.html>

Project Management

Program Director:

Claudia M Meyer

Program Manager:

Hung D Nguyen

Principal Investigator:

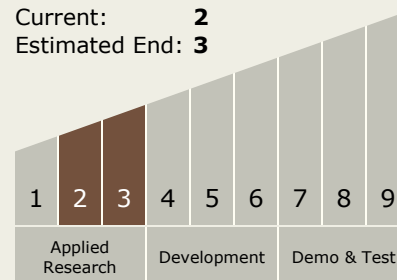
Daniel Scheeres

Technology Maturity (TRL)

Start: 2

Current: 2

Estimated End: 3



Technology Areas

Primary:

- TX09 Entry, Descent, and Landing
 - TX09.4 Vehicle Systems
 - TX09.4.5 Modeling and Simulation for EDL